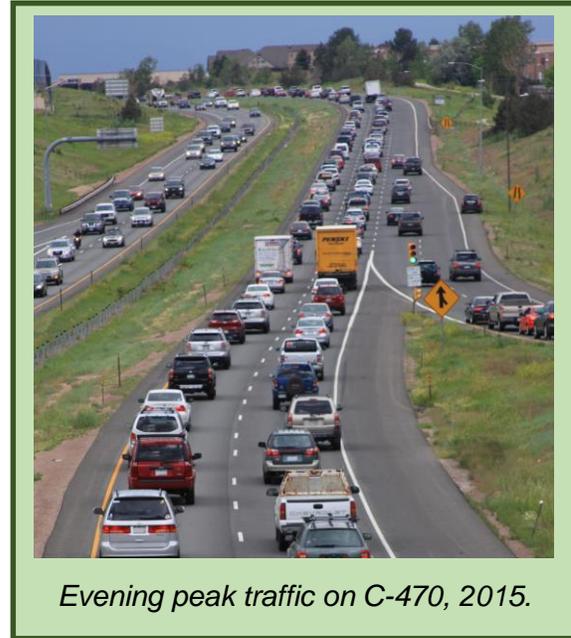
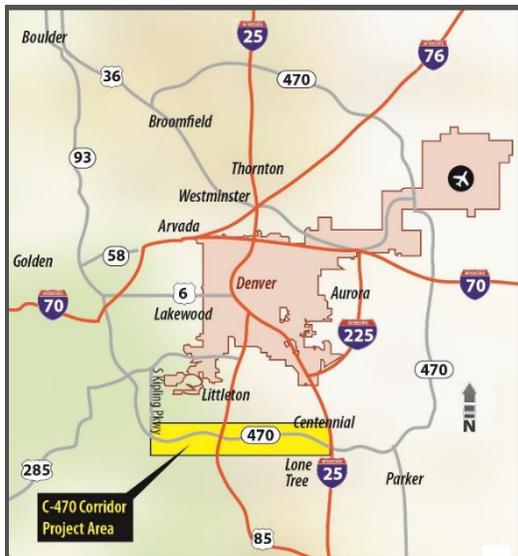


EXECUTIVE SUMMARY

This Revised Environmental Assessment (EA) was prepared by the Federal Highway Administration (FHWA) in conjunction with the Colorado Department of Transportation (CDOT) in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code § 4321 – 4347). According to CDOT's NEPA Manual, "NEPA requires that federal agencies use a systematic, interdisciplinary approach to decision making when actions may affect the quality of the human environment" (CDOT, 2014).

This document evaluates transportation solutions and their associated environmental effects in addressing congestion, delay and reliability problems on the 13.75-mile portion of State Highway 470 (C-470) between Kipling Parkway and Interstate 25 (I-25) in the southern portion of the Denver metro area. The Project Area is shown in **Figure ES-1**. C-470 is a four-lane (two lanes in each direction) freeway where traffic congestion has been of concern for more than a decade.

Figure ES-1
C-470 Corridor Project Area



Evening peak traffic on C-470, 2015.

An EA was approved in 2006 for a Preferred Alternative that would have added tolled express lanes on C-470 between Kipling Parkway and I-25 (CDOT, 2006). Due to lack of funding and other factors, CDOT and FHWA did not prepare a decision document for the project to be implemented.

About five years after approval of the 2006 EA, the cities and counties in the project area established the C-470 Corridor Coalition, with CDOT and FHWA included as affiliate (non-voting) members. This organization's founding Charter specified the following three "overarching goals":

- Develop and evaluate options for the C-470 Corridor which are cost effective
- Reach consensus on technical solution(s) for the C-470 Corridor
- Develop a strategic plan for phased implementation

CDOT and FHWA worked in close cooperation with the C-470 Corridor Coalition to prepare this Revised EA. This Revised EA recommends implementation of a Proposed Action that would add tolled express lanes on C-470 between Kipling

Parkway and I-25. This alternative is substantially similar to the Preferred Alternative from 2006, but it has several key modifications which improve its operations.

The region’s long-range *Metro Vision 2035 Regional Transportation Plan* (DRCOG, 2011a) was amended in May 2014 to include the C-470 Express Lanes project. The project is now included in the adopted projects list for the 2040 plan update (DRCOG, 2015). The proposed improvements described in this Revised EA are estimated to cost \$385 million. This number will be subject to change over time.

Contents of This Revised EA

This summary highlights the following topics:

- Purpose and Need
- Alternatives Considered
- Environmental Consequences
- Mitigation Measures
- Preferred Alternative Identification
- Public and Agency Involvement

Publication of this Revised EA in 2015 coincides with a 45-day public comment period. Following the public comment period, the FHWA and CDOT will prepare a decision document that responds to comments received on the Revised EA, updates impact analyses as necessary, and identifies any required mitigation.

ES.1 PURPOSE AND NEED

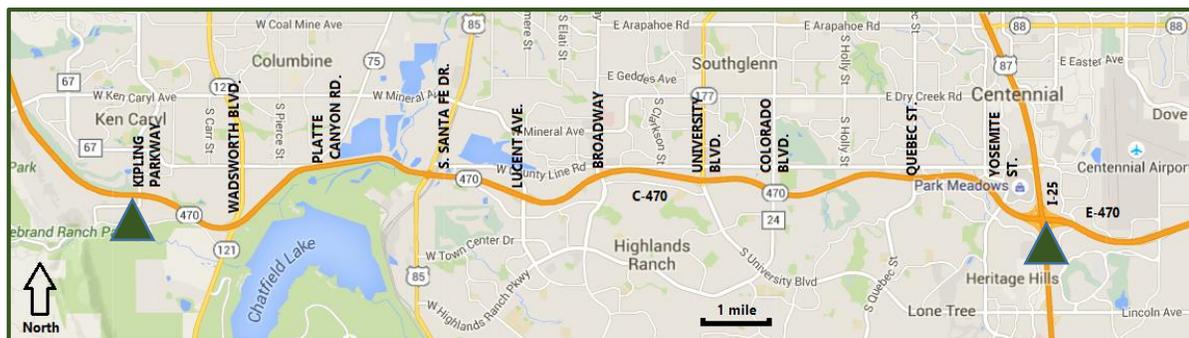
The FHWA and CDOT have identified a need for improvements to C-470 between Kipling Parkway and I-25. The purpose of this project is to provide congestion relief, decrease travel delay, and improve corridor reliability. The FHWA and CDOT seek to select an implementable transportation alternative that provides reliable and consistent travel times and commuting travel choices to accommodate an expected increase in the intensity and duration of congestion forecasted for the design year of 2035.

The need for this project is based on congestion, delay, and reliability. Additional considerations included implementation and safety. Specific need-based statements for the C-470 Corridor from Kipling Parkway to I-25 are highlighted here. **Figure ES-2** indicates the location of C-470 and its crossing arterials referenced below.

ES.1.1 Congestion

The Denver Regional Council of Governments (DRCOG), which is the federally designated transportation planning agency for the region, has identified C-470 as a “key congested area” on the regional transportation system (DRCOG, 2011b). Traffic volumes on C-470 range from 61,000 vehicles per day (vpd) near Kipling Parkway to 106,000 vpd near Yosemite Street. Volumes of 80,000 or more vehicles per day

**Figure ES-2
C-470 and Key North-South Roadways in the Project Area**



▲ Denotes project limit

for the four-lane freeway (two lanes each direction), are a general indicator of peak period congestion, and are found from Lucent Boulevard east to I-25. The eastern portion of the C-470 project area is congested today and has been for a number of years.

By 2035, projected volumes with the No-Action Alternative are predicted to range from 93,000 vpd to 161,000 vpd, so all 13.75 miles from Kipling Parkway to I-25 will be congested. Compared to existing traffic volumes, these predicted volumes reflect approximately a 50 percent increase, attributed to ongoing local and regional growth.

ES.1.2 Delay

Travel time sampling in 2013 found an average evening peak period travel speed westbound on C-470 (i.e., the homeward commute from downtown Denver to the suburban residential areas) to be 24 miles per hour, which is well below the posted speed limit of 65 miles per hour.

DRCOG estimates that travel delay for all 26 miles of C-470 will increase from 6,650 hours (2006 baseline) of vehicle delay daily to 41,940 daily hours of delay by 2035. The easternmost portion of C-470 from Kipling Parkway to I-25 accounts for at least half of these totals. The increased delay would result from the fact that C-470 is congested today and the predicted additional travel demand will cause the morning and evening peak periods to lengthen in duration, providing slower travel speeds for more hours of the day.

ES.1.3 Reliability

On a heavily congested freeway, any minor incident can cause long traffic backups. Currently, motorists cannot reliably predict how long it will take them to travel on C-470 during peak periods.

DRCOG's regional metric for travel time reliability is the ratio of travel time during

peak periods to free flow travel times. On this scale, C-470 at a ratio of 1.44 rates worse than the regional average of 1.27, and DRCOG predicts the ratio will more than double, to 2.93, by the year 2035.

ES.2 ALTERNATIVES CONSIDERED

Numerous alternatives were developed and evaluated during the screening process. These alternatives were carried through a three-step screening process. They were analyzed based on evaluation criteria that were consistent with the project Purpose and Need, and other considerations such as the ability to implement improvements in a short time frame, and minimizing harm to the environment. Alternatives analysis conducted in 2006 was carried forward and updated in the 2015 Revised EA, as explained in **Chapter 2**.

In 2006, initially, categories of alternatives were assessed for their ability to meet the Purpose and Need. The categories included general purpose lanes, tolled express lanes, transit, and mobility enhancements. Of these categories, only the general purpose lanes and tolled express lanes were identified as having the potential to meet the Purpose and Need as stand-alone alternatives, and thus were carried forward as action alternatives. The transit and mobility enhancement categories were not carried forward, but certain elements of them were later repackaged with the action alternatives. The 2006 EA identified Express Lanes as its Preferred Alternative.

A number of modifications have been made to the 2006 Preferred Alternative resulting in the 2015 Proposed Action. These are detailed in **Section 2.6.2, CDOT Works with the C-470 Corridor Coalition to Refine Project**.

Detail on the alternatives considered and the screening process can be found in **Chapter 2**.

A No-Action Alternative is considered in an EA for comparison purposes, whether it meets the project’s Purpose and Need or not. The No-Action Alternative differs from the existing conditions: for example, traffic volumes on C-470 in 2035 under the No-Action Alternative will be higher than they are today.

The Proposed Action of this Revised EA for C-470 would add one tolled express lane in each direction between I-25 and Kipling Parkway, and a second tolled express lane as follows:

- Westbound, I-25 to Lucent Boulevard
- Eastbound, Broadway to I-25

These new through lanes, plus new auxiliary lanes where warranted, would supplement the existing (free) general purpose lanes. **Figure ES-3** shows typical sections for the eastern portion of the corridor. Painted pavement buffers would separate the tolled lanes from the non-tolled lanes.

New direct-connect ramps would be provided to serve some movements at the

C-470/I-25 interchange, as detailed in **Chapter 2**.

Toll rates have not been determined at this stage of project development. Toll collection methods would include detection of in-vehicle transponders plus video-surveillance of license plates for automated billing by mail.

The Proposed Action is estimated to cost \$385 million but would not be built all at once. An Interim project estimated to cost \$269 million is expected to construct a substantial portion of the Proposed Action during 2016-2018.

ES.3 TRANSPORTATION IMPACTS

Transportation impacts of the No-Action Alternative and the Proposed Action are discussed in **Chapter 3**.

Due to continued local and regional growth, traffic will continue to increase on the already-congested C-470 freeway that currently has two through lanes in each direction.

**Figure ES-3
Proposed Action Typical Sections**



With the No-Action Alternative, the evening peak hour travel time between I-25 and Kipling Parkway in 2035 is estimated to be 32 to 33 minutes. Since the free-flow speed for this distance is 13 minutes, each vehicle would be experiencing about 20 minutes of delay. As noted earlier, this adds up to thousands of hours over delay on C-470 every weekday. Congested conditions on C-470 would also contribute to higher congestion levels on surrounding arterial streets.

With implementation of the Proposed Action, traffic operations, travel times, and safety would improve on C-470, as compared to the No-Action Alternative. The Express Lanes would offer reliable peak-period travel times with a performance goal that speeds would exceed 55 miles per hour 90 percent of the time. Traffic in the general purpose lanes would experience a slight travel time reduction during peak periods, compared with the No-Action Alternative.

ES.4 ENVIRONMENTAL CONSEQUENCES

The No-Action Alternative and the Proposed Action are evaluated in this Revised EA for their ability to meet the project Purpose and Need, their effect on the environment, and the mitigation measures necessary to address those effects. The direct, indirect, and cumulative environmental effects resulting from each of the alternatives are evaluated in **Chapter 4** of this Revised EA.

ES.4.1 Impacts of the No-Action Alternative

Key environmental impacts of the No-Action Alternative are noted below.

Traffic Flow: Increased travel demand of approximately 50 percent by the year 2035 cannot be accommodated by the current lanes on C-470. Therefore both peak periods would spread, with congested conditions encountered throughout most of the daylight hours.

Traffic Noise: An estimated 235 residences in 14 neighborhoods would experience noise levels higher than CDOT's Noise Abatement Criteria (NAC) in the year 2035. Portions of trails and parks adjacent to C-470 would also have noise levels that exceed the NAC.

Water Quality: Stormwater runoff would continue to discharge directly into receiving waters without being treated, because water quality mitigation features were not required when C-470 was built.

Other Resources: The No-Action Alternative would not cause construction-related traffic congestion and would not affect the C-470 Trail, other park and recreation facilities, the corridor's visual and aesthetic character, or utilities.

ES.4.2 Impacts of the Proposed Action

Key environmental impacts of the Proposed Action are noted below.

Traffic Flow Improvement: With addition of Express Lanes and auxiliary lanes on C-470, Traffic Level of Service would improve on many portions of C-470, especially during the afternoon peak period, as compared with the No-Action Alternative. The Proposed Action would carry more vehicles each day than the No-Action Alternative, but would do so with improved travel speeds and thus less today vehicle delay.

Construction-Related Traffic Congestion: Temporary construction activity would result in traffic congestion that could increase congestion on surrounding arterial streets and intersections.

C-470 Trail: About 5.8 miles of the C-470 trail would be reconstructed to accommodate roadway expansion. The Proposed Action would provide grade-separated crossings of Colorado Boulevard and Quebec Street.



Traffic noise is an important concern along C-470. To supplement existing C-470 noise barriers like the one shown above, this Revised EA recommends installation of an additional three miles of barriers benefitting an estimated 360 households.

Traffic Noise: Without mitigation, an estimated 469 residences in 16 neighborhoods would have noise levels higher than the NAC in 2035. Portions of parks, recreational trails and the C-470 commuter trail would also experience traffic noise levels exceeding the NAC. However, recommended mitigation (e.g., additional C-470 noise barriers) would substantially reduce this number of impacted residences. Mitigation is recommended where it would be reasonable and feasible in accordance with adopted CDOT's adopted, statewide Noise Assessment and Abatement Criteria.

Parks and Recreation: Three existing trails that cross under C-470 would experience temporary closures, and their users would be detoured to other routes. The Mary Carter Greenway Trail would be reconstructed, while the High Line Canal Trail and Willow Creek Trail would not.

Water Quality: Construction improvements would include water quality ponds to meet permitting requirements, thus offering the opportunity to improve the quality of water

entering receiving streams. Temporary BMPs would be used to minimize storm runoff from the soil disturbance during construction.

Visual and Aesthetic Character: The visual character of the project area would change from adding structural elements related to the additional lanes, signage and toll collection; new retaining walls along the highway would be visible from neighboring communities and Chatfield State Park.

Utilities: Within the 13.75-mile project area, there are more than 300 utility lines within C-470 right-of-way, including lines that cross the highway. Various utility lines would require relocation.

ES.5 MITIGATION MEASURES FOR THE PROPOSED ACTION

Mitigation measures for project-related direct and indirect effects are discussed in detail in **Chapter 4**. Highlights include:

Construction-Related Traffic Congestion: CDOT will maintain the existing number of

through lanes (two each direction) open to traffic throughout project construction, except in certain circumstances when full closure is needed. Any full closures would be done in a manner that minimizes impacts to traffic.

C-470 Trail: The C-470 trail would remain open during construction, with minor detours to ensure bicycle and pedestrian safety.

Traffic Noise: This Revised EA recommends installation of five new noise barriers along the corridor to reduce noise for residential areas where doing so would be reasonable and feasible according to statewide guidelines. Additionally, an existing noise barrier for the Wolhurst community would be relocated closer to the residences to accommodate modifications of the westbound C-470 on-ramp from South Santa Fe Drive.

Parks and Recreation: CDOT will work closely with affected trail agencies and groups to provide signed detours and advance notice to users for the expected temporary closures of three trails that cross C-470.

Water Quality: Best management practices (BMPs) including provision of water quality ponds would be used to detain stormwater runoff from the highway and filter out sediment before the runoff is discharged to nearby receiving waters.

Visual and Aesthetic Character: Architectural treatments would be employed to maintain consistency throughout the corridor. CDOT has been working with C-470 Corridor Coalition members (e.g., counties, cities, towns) and will continue to do so to ensure that they have adequate input in the selection of specific architectural elements.

Utilities: Utility conflicts would be identified during final design and relocations would be

performed in accordance with standard CDOT policy.

ES.6 PUBLIC AND AGENCY INVOLVEMENT

The outreach program for the Revised EA was designed to ensure public input and participation in the planning and environmental process. Public involvement was part of an overall communications program that involved community relations, media relations, and agency coordination.

The agency outreach program for the Revised EA involved federal and state resource agencies in the study regarding evaluation of potential effects to resources under their jurisdiction.

FHWA invited the U.S. Army Corps of Engineers (USACE) to formally participate as a Cooperating Agency on this Revised EA because for the several miles between Wadsworth Boulevard and Santa Fe Drive, C-470 is located on an easement from USACE.

Throughout development of this Revised EA, a project website has been available to provide an overview of the environmental process, the project schedule, frequently asked questions and answers, meeting announcements, exhibits from open house meetings, and other project information. The website address is:

<https://www.codot.gov/projects/c470ExpressLanes>



Quick Response Code for cell phone access to the C-470 Revised EA website

Five telephone town hall events and four public meetings were conducted by the C-470 Corridor Coalition in 2012 to obtain input regarding project funding preferences. Another four public meetings and three town halls were conducted in 2014 to update the public on the status of Revised EA findings.

Traffic noise results became available in 2015. Since this is a key issue of interest to the public, CDOT contacted households in and near impacted areas and held a public information meeting this topic. Numerous additional presentations were made to community groups to keep them informed about the Revised EA process.

As noted earlier, a 45-day public review period and an advertised public hearing will take place upon CDOT and FHWA approval of this Revised EA. See **Chapter 5** for more information about public and agency involvement."